

## ABSTRACT

A method of detection, separation and identification for expressed trace protein/peptide; and a system therefor. There is provided a method of detecting, separating and identifying a minute amount of expressed protein and/or peptide, characterized in that a fluorescent derivative of protein and/or peptide contained in a test subject sample having been labeled with a fluorescence reagent is applied to HPLC; a fluorescent fraction is collected and subjected to enzymatic hydrolysis; mass-spectrometry of the resultant fluorescence-labeled fragments and non-fluorescence-labeled fragments is carried out; and the thus obtained ion molecular weight information on each of the fragments is collated with an available protein and/or peptide fragment database to thereby accomplish a structural analysis. Further, there is provided an identification system therefor.